

I claim:

1. A method of producing optical emissions from a target source, comprising the steps of:
forming a metallic solution at room temperature;
passing the metallic solution into a target source; and
5 irradiating the target source with a high energy source to produce optical emissions that
are debris free and cannot cause debris damage to surrounding components.

2. The method of claim 1, wherein the high energy source includes: a laser source.

10 3. The method of claim 1, wherein the optical emissions include: X-rays.

4. The method of claim 1, wherein the optical emissions include:
EUV(extreme ultraviolet) wavelength emissions.

15 5. The method of claim 1, wherein the optical emissions include:
XUV wavelength emissions.

6. The method of claim 1, wherein the step of passing includes:
forming microscopic droplets.

20 7. The method of claim 6, wherein the microscopic droplets each include:
diameters of approximately 30 micrometers to approximately 90 micrometers.

8. The method of claim 7, wherein the microscopic droplets each include:
25 diameters of approximately 40 micrometers to approximately 80 micrometers.

9. The method of claim 1, wherein the metallic solution includes:

a metallic chloride solutions.

10. The method of claim 7, wherein the metallic chloride solution includes:

ZnCl(zinc chloride).

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11. The method of claim 7, wherein the metallic chloride solution includes:

CuCl(copper chloride).

12. The method of claim 7, wherein the metallic chloride solution includes:

10 SnCl(tin chloride).

13. The method of claim 7, wherein the metallic chloride solution includes:

AlCl(aluminum chloride).

15 14. The method of claim 1, wherein the metallic solution includes:

a metallic bromide solution.

15. The method of claim 14, wherein the metallic bromide solution includes:

CuBr(copper bromide).

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16. The method of claim 14, wherein the metallic bromide solution includes:

ZnBr(zinc bromide).

17. The method of claim 14, wherein the metallic bromide solution includes:

25 SnBr(tin bromide).

18. The method of claim 1, wherein the metallic solution includes:

a metallic sulphate solution.

19. The method of claim 18, wherein the metallic sulphate solution includes:
CuSO4(copper sulphate).

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20. The method of claim 18, wherein the metallic sulphate solution includes:
ZnSO4(zinc sulphate).

10 21. The method of claim 18, wherein the metallic sulphate solution includes:
SnSO4(tin sulphate).

22. The method of claim 1, wherein the metallic solution includes:
a metallic nitrate solution.

15 23. The method of claim 22, wherein the metallic nitrate solution includes:
CuNO3(copper nitrate).

24. The method of claim 22, wherein the metallic nitrate solution includes:
ZnNO3(zinc nitrate).

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25. The method of claim 22, wherein the metallic nitrate solution includes:
SnNO3(tin nitrate).

26. The method of claim 1, wherein the room temperature includes:
25 approximately 10 degrees C to approximately 30 degrees C.

27. The method of claim 1, wherein the optical emissions include:

approximately 11.7nm.

28. The method of claim 1, wherein the optical emissions include:
approximately 13nm.

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29. The method of claim 1, wherein the metallic solution includes:
an organo-metallic solution.

30. The method of claim 29, wherein the organo-metallic solution includes:
10 CHBr₃(Bromoform).

31. The method of claim 29, wherein the organo-metallic solution includes:
CH₂I₂(Diodomethane).

15 32. The method of claim 1, wherein the metallic solution includes:
SeO₂(Selenium Dioxide).

33. The method of claim 1, wherein the metallic solution includes:
ZnBr₂ (Zinc Dibromide).

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34. A method of generating optical emissions from metallic point sources, comprising the
steps of:

forming microscopic liquid metal droplets at room temperature without heating the
droplets;

25 passing the droplets into individual target sources;
irradiating the individual target sources with a laser beam having substantially identical
diameter to each of the individual droplets; and

producing optical emissions from the irradiated target sources without debris damage to surrounding components.

35. The method of claim 34, wherein each of the microscopic liquid metal droplets include:
5 metallic chloride solutions.

36. The method of claim 34, wherein each of the microscopic liquid metal droplets include:
metallic bromide solutions.

10 37. The method of claim 34, wherein each of the microscopic liquid metal droplets include:
metallic sulphate solutions.

38. The method of claim 34, wherein each of the microscopic liquid metal droplets include:
metallic nitrate solutions.

15 39. The method of claim 34, wherein each of the microscopic liquid metal droplets include:
an organo-metallic solution.

20 40. The method of claim 34, wherein the room temperature includes:
approximately 10 degrees to approximately 30 degrees C.

41. The method of claim 34, wherein the optical emissions include:
approximately 11.7nm.

25 42. The method of claim 34, wherein the optical emissions include:
approximately 13nm.